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Peiler et al.

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[54] **TAMPON APPLICATOR**

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[21] Appl. No.: **09/024,090**

[22] Filed: **Feb. 17, 1998**

Related U.S. Application Data

[62] Division of application No. 08/728,187, Oct. 6, 1996, Pat. No. 5,769,813.

[51] **Int. Cl.**[7] **A61F 13/20**

[52] **U.S. Cl.** **604/11**; 604/904; 604/285

[58] **Field of Search** 604/11–18, 904, 604/285–288, 51, 36, 38, 57, 59, 60, 311, 1–3

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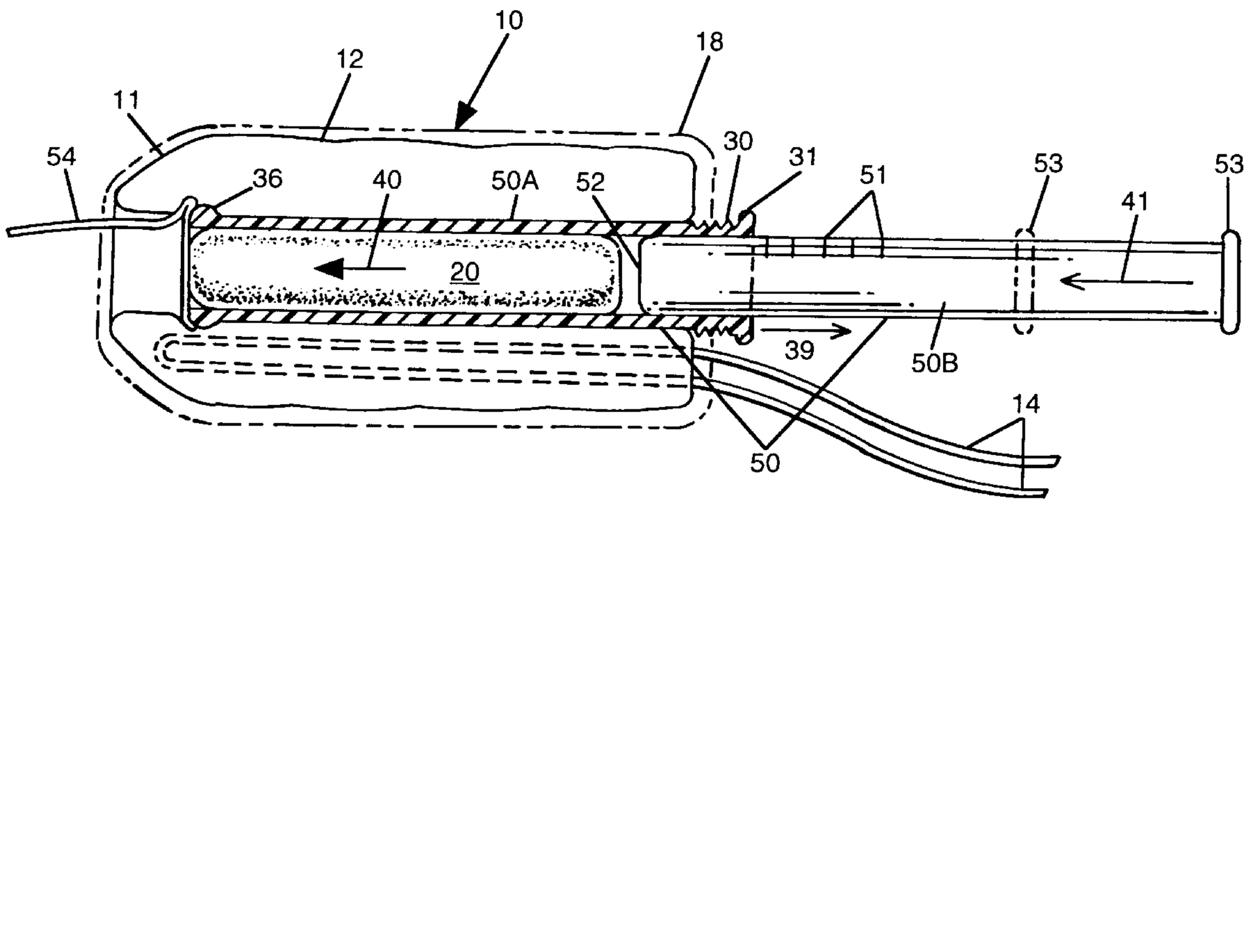
Primary Examiner—John G. Weiss
Assistant Examiner—Dennis Ruhl

[57] **ABSTRACT**

The present invention improves the conventional tampon assembly, wholly and in parts including the tampon assembly for delivery of medicament with an absorbent body having an improved rounded front-end, improved single plunger and dual, telescopic plunger members both incorporating a dosage measurement scale for medicament dosage administration; further improves the hydrophilic body of the tampon, applicator housing and plungers, inserter devices, withdrawal string and any other movable parts operating independently or sychronously. Improvement incorporates medically well known indicators for example, litmus for measuring pH balance, of various shapes, sizes or color-spectrums applied to the tampon assembly, wholly or in parts as described above by means including such as, but not limited to, impregnation within, adherence to, coated with or otherwise applied as is reasonable to maintain the integrity and sufficiency of various indicators for purposes of testing internally or externally excreted biological fluid for detection and identification of bacterium concentration levels present in said biological fluids via corresponding indicator prognosis charts. Moreover, also included in the utility of indicator application in the manufacture are generally absorbent products that utilize the same or similar hydrophilic materials as those used in tampon manufacture such as, but not limited to, sanitary napkins, panty liners, incontinence diapers for babies and adults, bandages and the like, which also incorporates the same well known indicators.

8 Claims, 5 Drawing Sheets



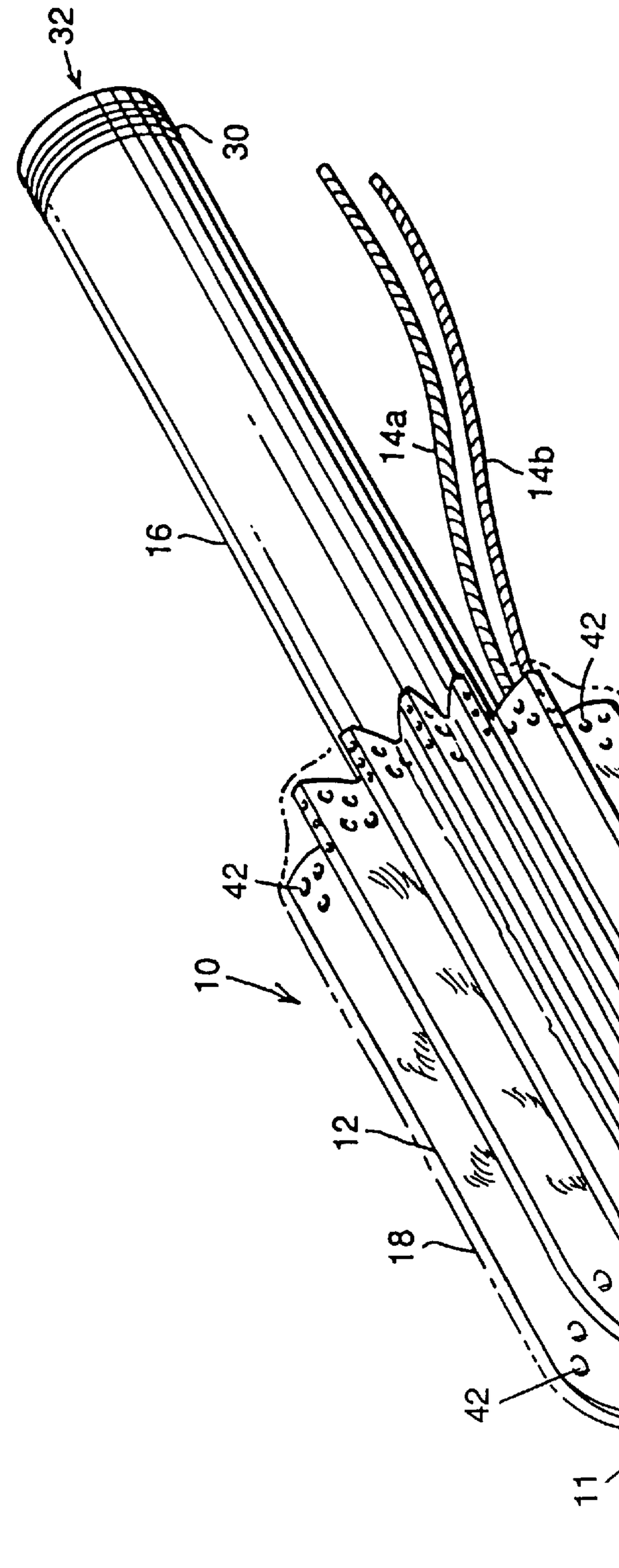

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FIG. 1

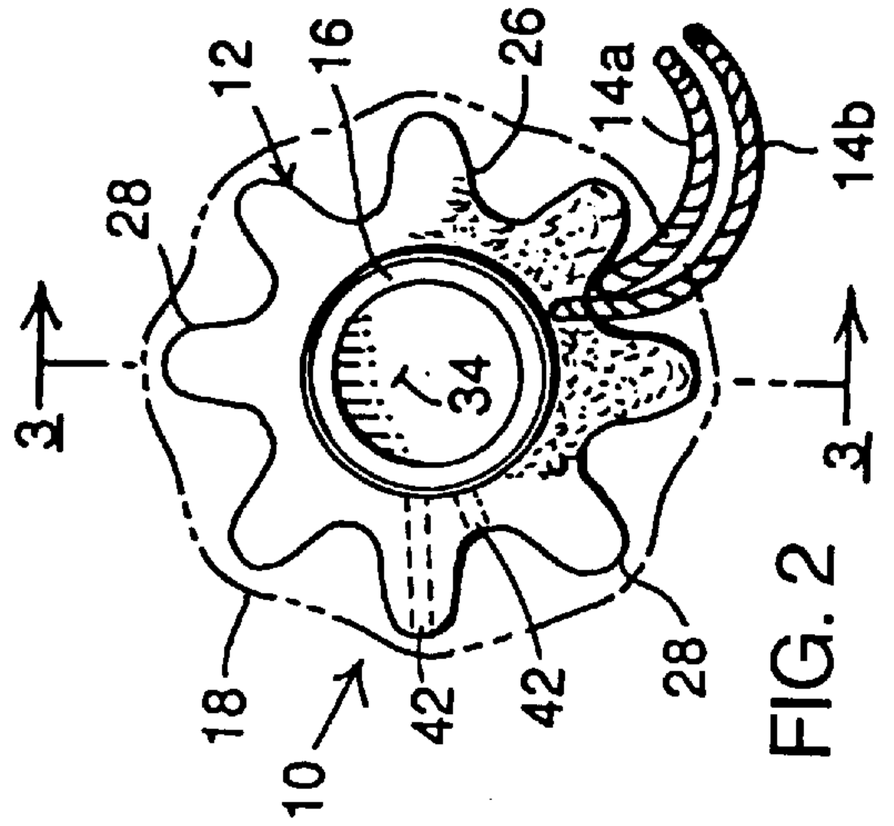
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FIG. 2

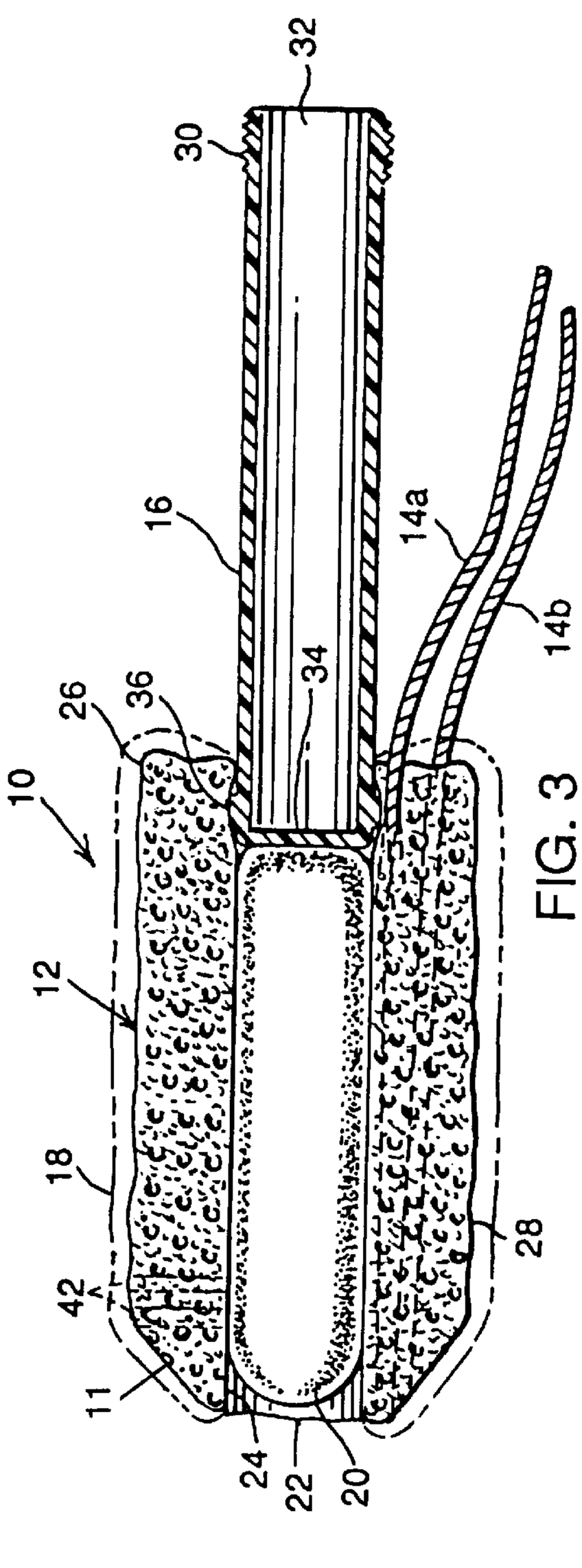
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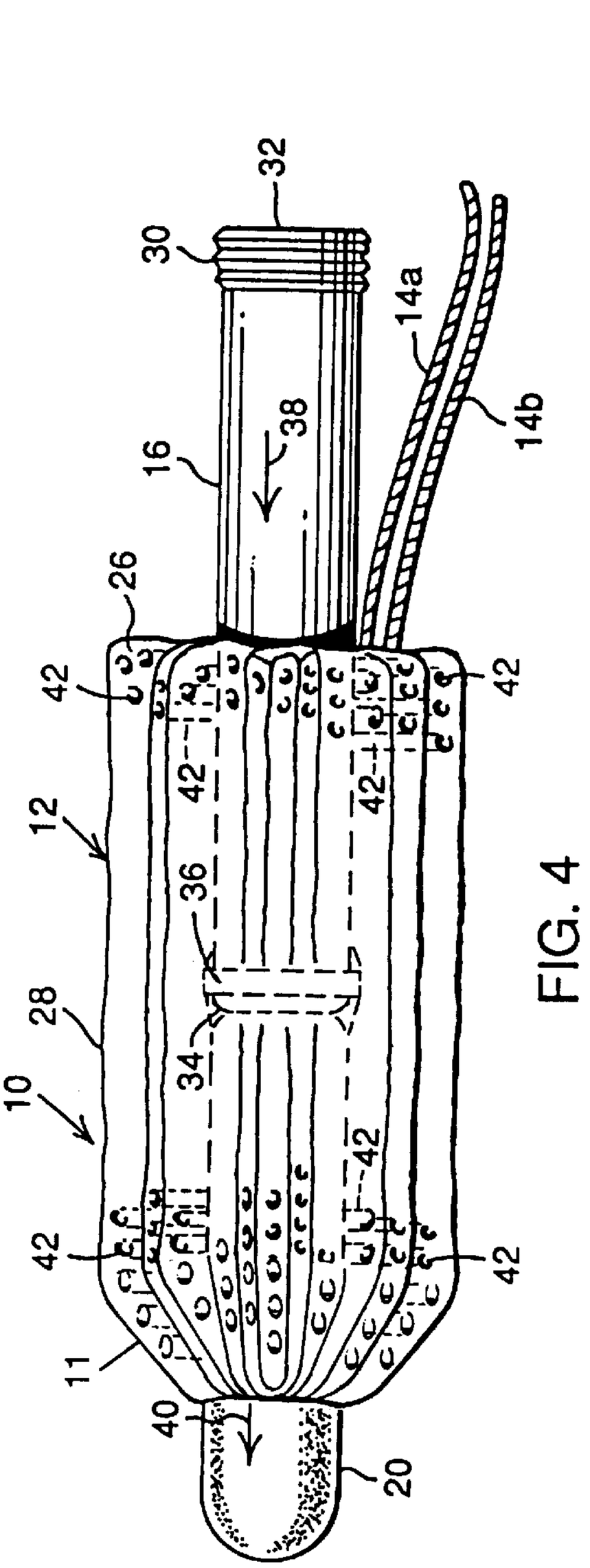
FIG. 3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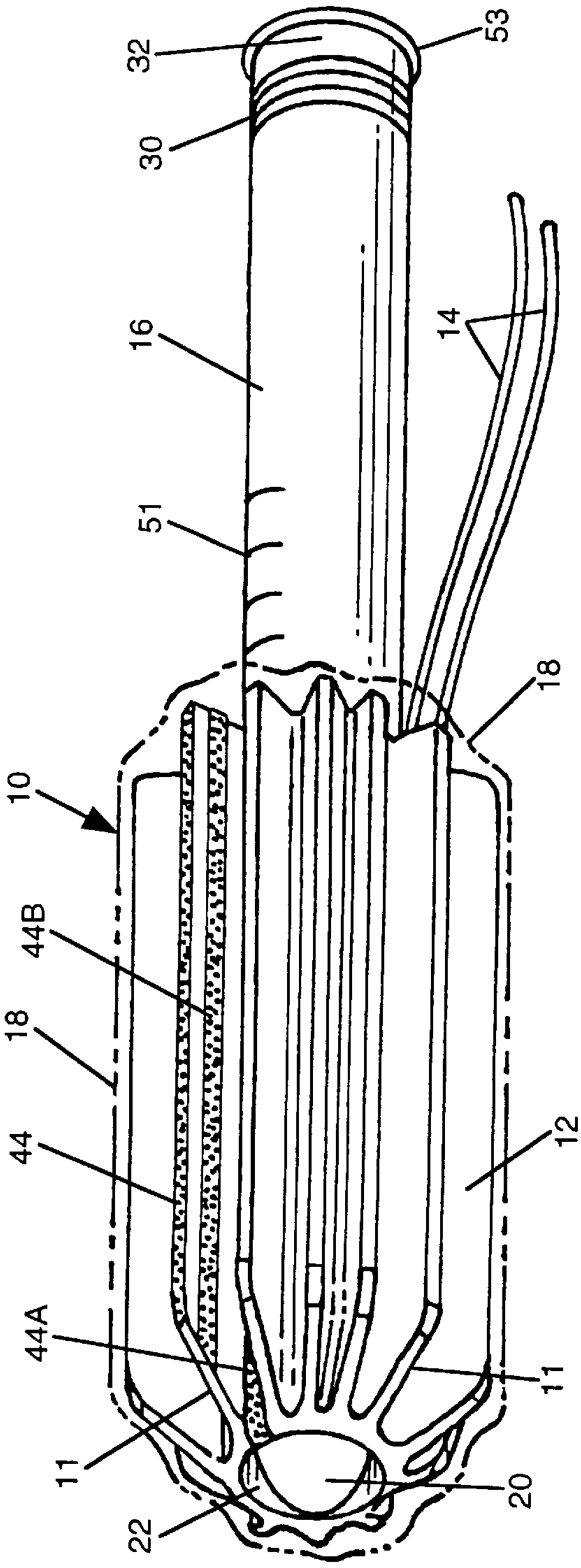
20

FIG. 4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53
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16
14
51
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10
44B
18
44
12
44A
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11
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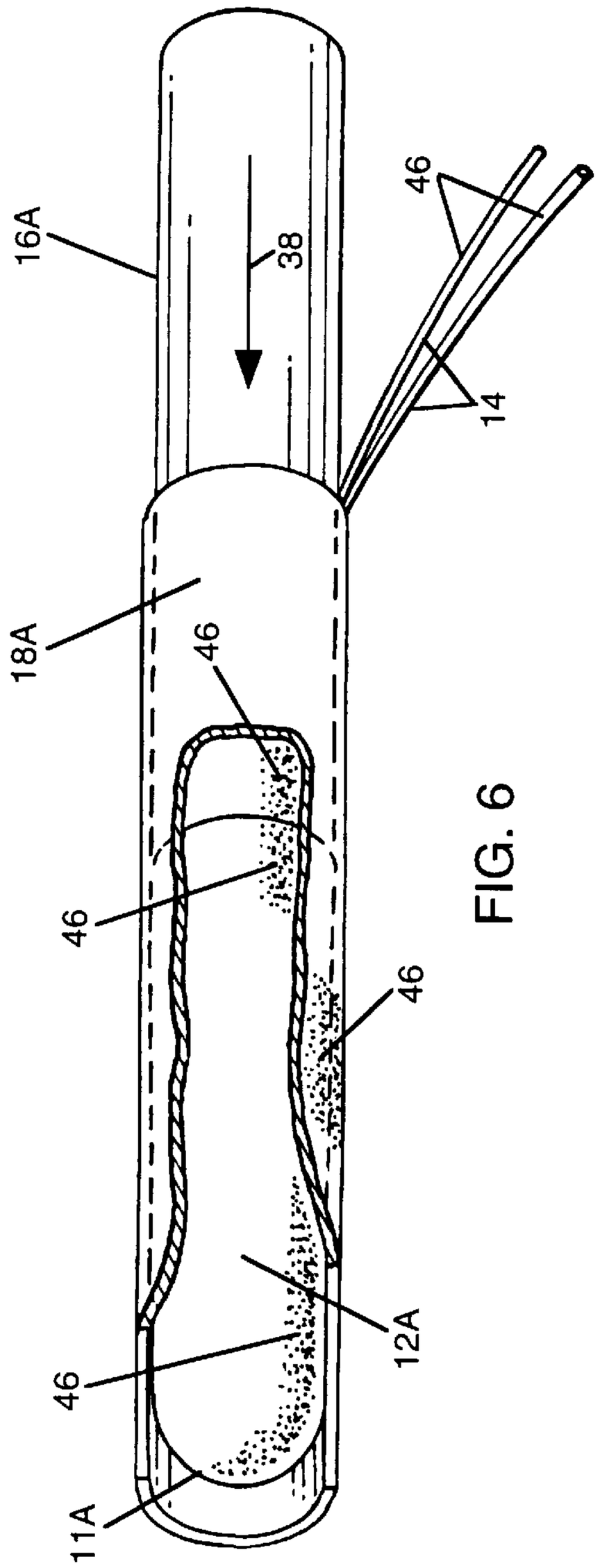
22

FIG. 5


16A
38
46
14
18A
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46
12A
46
11A

FIG. 6

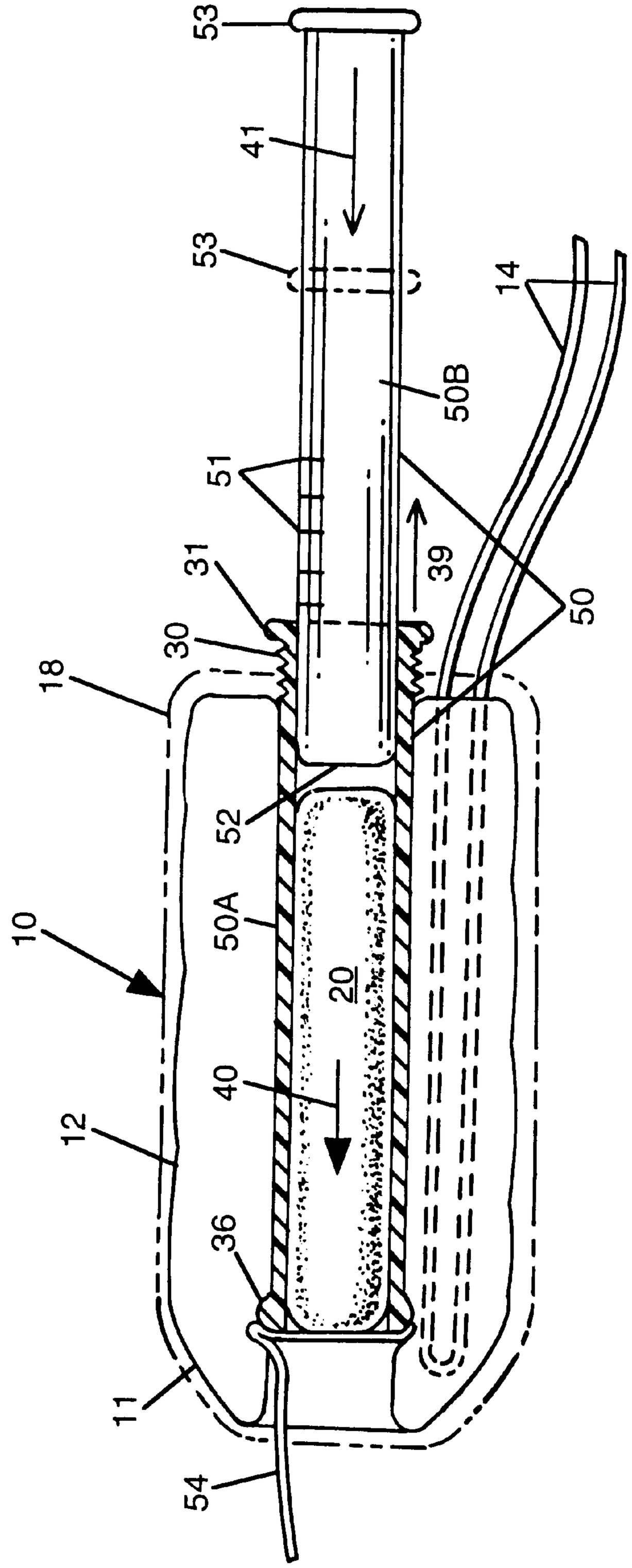


FIG. 7

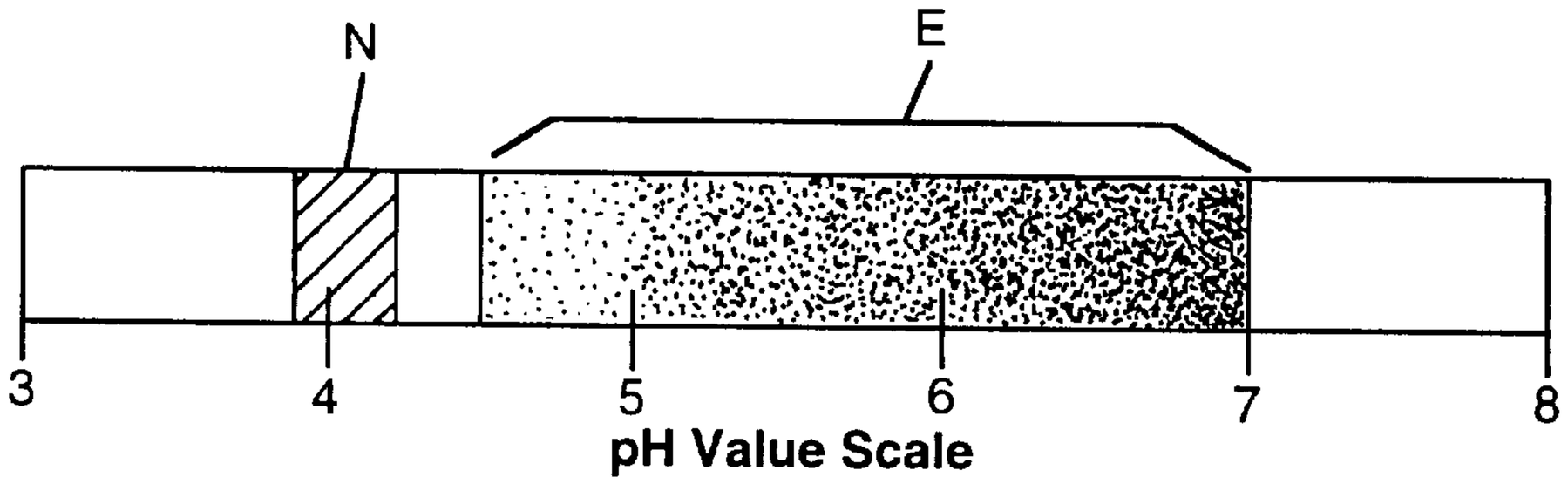
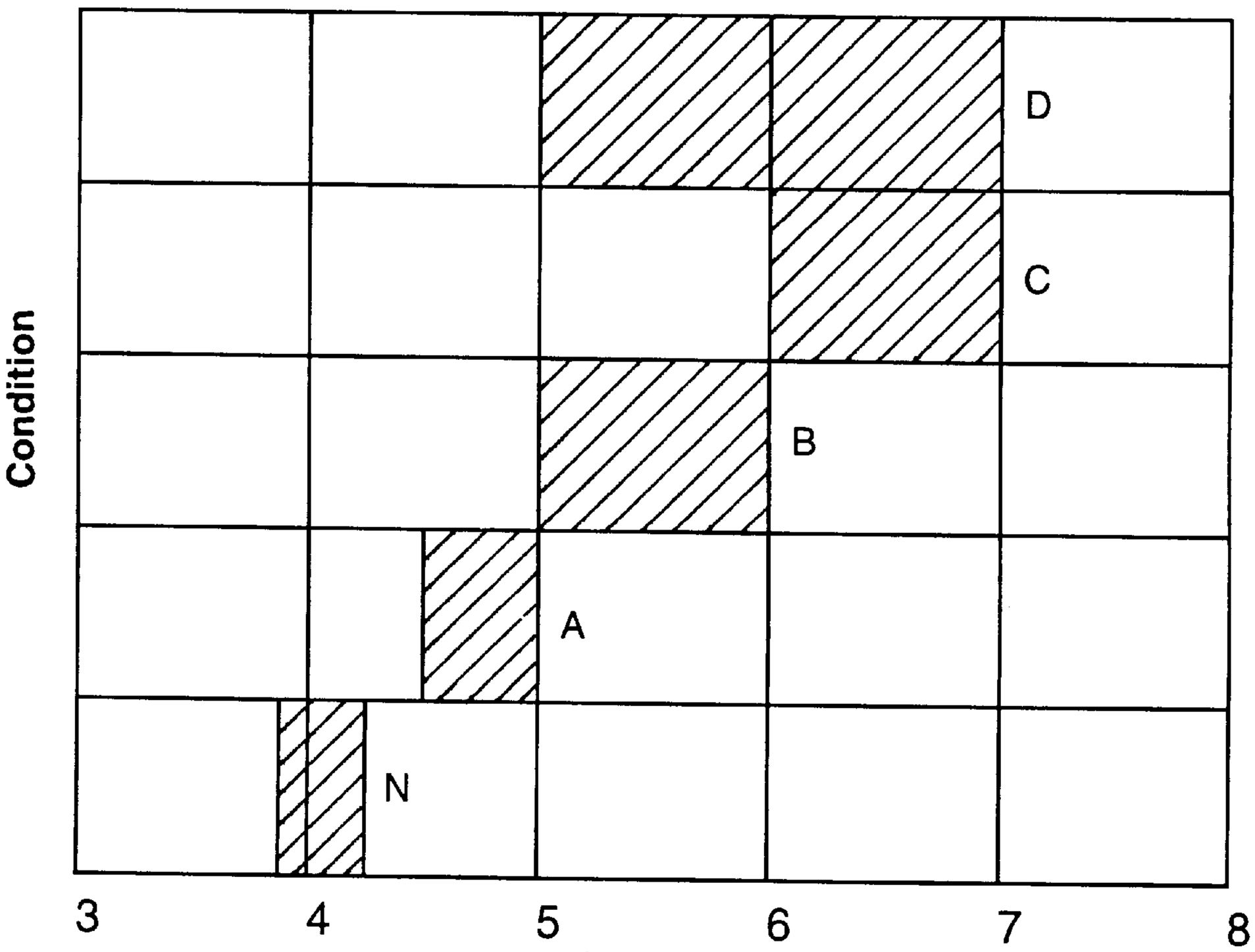


FIG. 8A



Index	pH Range	Condition
N	3.8 / 4.2	Normal Physiologic Vaginal
A	4.5 / 5.0	Trichomonas (Bacterial Vaginosis)
B	5.0 / 6.0	Gardnerella
C	6.0 / 7.0	Trichomoniasis (STD)
D	5.0 / 7.0	T. Vaginalis
E	4.5 / 7.0	Primary Vaginal Infections

FIG. 8B

TAMPON APPLICATOR

This application is a divisional of application Ser. No. 08/728,187, filed Oct. 6, 1996 and now U.S. Pat. No. 5,769,813.

BACKGROUND OF THE INVENTION

I. Field of Invention

The present invention relates to tampons, more specifically to an improved tampon assembly or tampon applicator incorporating indicators in the manufacture well known in the medical field for testing excreted biological fluids for comparison to accompanying diagnostic, color chart. Said indicators may also be applied, but not limited to, sanitary napkins, panty liners, incontinence diapers for babies and adults, bandages and the like that utilize the same or similar hydrophilic materials for absorbing biological fluids as that of a conventional tampon body.

II. Description of the Prior Art

Conventional tampons for absorbing catamenia, or impregnated with various spermicides, deodorants, etc. are well known in the art as are tampons utilized to carry medicaments into the vaginal cavity. However, a tampon for testing biological fluids which incorporate indicators such as, but not limited to litmus for determining pH balance and identifying other than normal bacterial activity in the biological fluid excreted from the vaginal cavity are virtually unknown in the art as described herein.

Tampons utilized to carry a medicament into the vaginal cavity are well known, and are illustrated, for example, in U.S. Pat. No. 4,309,997, issued Jan. 12, 1982; and U.S. Pat. No. 4,318,405 and various other patents described therein. All tampons have in common the use of an absorbent material, generally referred to as hydrophilic. In addition to aforementioned patents, hydrophilic materials are described in, inter alia, U.S. Pat. No. 4,475,911, issued Oct. 9, 1984. As used herein, the term "absorbent" refers to materials which are hydrophilic as that term used in U.S. Pat. No. 4,475,911.

As the foregoing patents demonstrate, it is well known to use various "medicaments," which, as used herein, includes materials such as deodorants and the like as well as material whose use is more generally considered to be for therapeutic purposes. Medicaments may be used seriatim in conjunction with tampons, that is, the medicament is inserted into the vaginal cavity, followed by the tampon to prevent leakage. Such a seriatim procedure has numerous obvious disadvantages. Attempts to avoid these disadvantages generally fall into two categories, either the tampon is impregnated with the medicament, such as is described in U.S. Pat. No. 4,309,997, or the medicament is carried in encapsulated form by the tampon, as is described in U.S. Pat. No. 4,318,405. Devices of the type described in U.S. Pat. No. 4,309,997 present problems related to the shelf life of the medicament, allergic reactions to the type of medicament used, and the inconvenience of pre-wetting the tampon, which is often required. Tampons of the type described in U.S. Pat. No. 4,318,405 retain the encapsulated medicament in the tampon both before and after insertion of the tampon into the vaginal cavity, and so may suffer from many of the same disadvantages as the impregnated tampons. In addition, upon dissolving of the encapsulated medicament, much of the medicament will be absorbed by the tampon itself, rather than being applied directly to the body surfaces. Because of the relatively small volume of medicament carried in such a device, often the medicament fails to reach

the affected area in sufficient strength. There is also a possibility that the vaginal cavity may be lacking in a sufficient amount of body fluid to dissolve the capsule and ensure medicament application.

Insofar, the prior art which incorporates use of medicaments do not identify or make known a process for identifying whether or not bacterial condition of the vaginal cavity is conducive to introduction of such medicaments, therapeutic or contraceptive. Within this description of the prior art, reference to indicators identifying pH levels are intended as an example for illustrative purposes but not for its use to be limited by such example.

Extensive research in the field of Gynecology confirms that the vaginal cavity contains numerous naturally occurring bacterial flora which are very sensitive to the introduction of medicaments. The condition of the flora is generally identified by toxicity and can be measured via a pH test process well known in the medical field. As previously mentioned, a tampon or other hydrophilic material utilized for absorbing and testing of biological fluids incorporating in the manufacture an indicator such as litmus, for determining pH balance of biological fluid excreted from the vaginal cavity or such as keytone for testing excretions from the adjacent urethral opening are currently unknown in the art. This example of an indicator applied to test pH generally uses, but is not limited to litmus, also known as turnsole or lacmus, which contain litmus, a natural pigment obtained from lichens whose main principle is azolitmin manufactured primarily in a paperlike form whereby color-indicators range from acidic pH colored red (below 4.5) to alkaline pH colored blue (above 8.3). Azolitmin is a brownish-red coloring principle found in cudbear and other commercial litmus preparations for testing. Cudbear is a dusky-red-purple to very dusky red powder obtained from species of Rocella de Candolle, Lecanora Archius or other lichens. Amaranth is another commonly used herb that is a red azo dye used in place of cudbear preparations. There are no known toxic exposures to the agents constituent in litmus, its variations or principle components. Rather, litmus detects toxicity variations present in biological fluids indicative of other than normal conditions. Normal pH levels within the vaginal cavity range approximately from 3.8–4.2. When the vaginal pH is 5.0 or greater, levels indicate vaginosis or atrophic vaginal discharge as described in *Principles and Practice of Clinical Gynecology,* p. 598. Utilizing such tests provides a means for early detection of harmful bacterial activity which cause infections that could be identified via corresponding pH levels at an early and treatable stage. Due to the nature of the indicator, application is not harmful to the user nor is it chemically reactive to present medicaments.

The only relevant prior art discovered is identified in an article referencing tests conducted at the University of Athens entitled "*Evaluation of Lactate Dehydrogenase Activity as an Index of Cervical Malignancy*" (European Journal of Gynaecology Oncology, 12(6) 471–6 1991); presents a tampon known as Gynaegnost coated with chemical compounds PMS (phenazin methosulfate) basically an electron conductor which draws NADH (biological fluid) to the surface cover of the tampon coated with NBT (nitrobluetetrazolium-chloride), a coloring agent which becomes blue (diformizan) in the presence of LDH (lactose dehydrogenase) activity. Intensity of the diformizan coloration corresponds to the intensity of the LDH activity. Several disadvantages are apparent with this method:

a. A lay user could conduct this test outside a laboratory setting, however, results are intended to identify pre-invasive or invasive cervical malignancy which is a

very serious disorder to have a lay user diagnose particularly with one coloring agent and chemical compounds that should be used under the supervison of a gynelogical authority.

b. While Gynaegnost tests for cervical cancer (CaCx), the test results have concluded with many false positive readings which distorts the accuracy and validity of the test.

c. Further notations in the journal specifically state that the test should not be conducted in the presence of vaginitis or cervicitus due to the occurrence of the false positive disqualification.

In contrast, the preferred embodiment of the present invention eliminates such unknowns by simply using the indicator to test the biological fluid and provide a quantitative analysis whereby coloration relates directly to a numerical level of intensity (acid or alkaline) with a corresponding prognosis chart indexed according to infection type that is generally accepted by gynecology professionals for which charts can be amended accordingly with continuous improvement of gynecology standards. As notated, Gynaegnost is not recommended for use during the presence of infection, whereas the present invention conversely encourages use of indicator testing pH balance of biological fluids to identify an impending infection for purposes of preventing progression of a simple infection to cervical malignancy.

The present invention not only utilizes the indicator as a pH test system for other than normal conditions of the vaginal cavity but further for tracking daily pH balance for purposes of natural contraception. There exists in the prior art many patents for tampons previously mentioned which include contraceptives as a form of medicament, in the manufacture. There does not appear to be any known prior art that utilizes the tampon assembly incorporating indicators for contraceptive purposes by determining whether chemical balance is conducive to conception which can therefore be avoided if the user so chooses.

OBJECTS AND ADVANTAGES

The object of the present invention is to provide a simplified tampon applicator test apparatus for use during other than menstrual periods to detect the presence of bacterial activity via internally or externally excreted biological fluids collected within an absorbent or hydrophilic body designed for fluid accumulation and assembly parts previously mentioned which come into contact with said biological fluids by incorporating, color indicators in the manufacture of the tampon assembly, the conventional hydrophilic tampon body, applicator housings, plungers, withdrawal strings or any other part of the tampon assembly that comes into contact with said excreted biological fluids whereby results are interpreted by comparing the resultant color of the tampon assembly wholly or in parts to the accompanying color-corresponding prognosis chart. Within this description of the preferred embodiment, reference to pH indicators are meant as an example for illustrative purposes but not for its use to be limited by such example.

The improvements in the preferred embodiment have numerous obvious advantages:

a. Indicators are available in various material forms such as paper strips, dyes, pastes and the like with varying degrees of color spectrums that can be incorporated in accordance with the manufacture of a tampon assembly, wholly or in parts.

b. The nature of such indicators provides a very safe means of testing that will avoid inflicting harm on the user and is characteristically not chemically-reactive with existing medicaments.

c. The tampon assembly or tampon applicator for delivery with indicators combined provides a test system that is versatile, simple, user-friendly, easy to read and easy to dispose of.

d. False-positive distortion is less likely to occur as indicators are not adversely affected in the presence of infection but rather indicative of the infection.

e. Indicators can be applied to any embodiment utilizing hydrophilic material for absorbing excreted biological fluid as the material which absorbs the fluid is a biological sample sufficient for testing.

f. When indicators are used in conjunction with a tampon applicator for delivery of a medicament, the presence of such indicators will not hinder the application of medicaments but instead would enable testing the effectiveness of said medicaments post-application.

g. The improved rounded front end of tampon applicator for delivery of a medicament would allow for easier insertion of the tampon applicator and make the removable closure more accessible and therefore easier to remove before use.

h. The tampon applicator for delivery of a medicament is further improved by a dual-member telescopic ejection wand means with dosage measurement scale to provide a more efficient and accurate means of medicament application to ensure user applies the proper dosage in accordance with prescribed quantities whereby the dual-member wand precipitates easier handling of the medicament to be applied.

i. The improved dual-member telescoping wand with dosage measurement scale allows medicament to be selectively pre-package or separately package a wider variety of medicaments such those of a lesser density for example, liquids which could prematurely activate collapse of the hollowed bore. This method of selective packaging provides for a more sanitary system of medicament application and prevent exposure of said medicaments to bacteria present in the environment. Further, this improvement would serve to minimize waste even further than is already available.

The preferred embodiment is in the form of a tampon applicator for delivery of a medicament with improved rounded front end, improved wand for use in seriatim procedure incorporating dosage measurement scale for accuracy, an alternative dual telescoping wand assembly which allows for but is not limited to, application of less dense medicaments, selective pre-packaging and provide a more sanitary means of medicament handling prior to insertion. Further includes a conventional tampon assembly, separately or as a whole, incorporating in its manufacture indicators for testing excreted biological fluid. Moreover the method of applying indicators in the manufacture can also be applied, but not limited to, sanitary napkins, panty liners, incontinence diapers for babies and adults, bandages and any other such hydrophilic materials utilized for absorbing excreted biological fluids.

SUMMARY OF THE PRESENT INVENTION

According to the present invention, a tampon assembly adapted for carrying a medicament for selective expulsion during use has an improved tubular inserter incorporating a dosage measurement scale, a dual telescopic tubular inserter means consisting of the principle tubular member, wherein the lead end is open with a sealable closure which slidably

engages a secondary telescoping member fitted and closed at the abutting end, of which one or both tubular members incorporate dosage measurement scale such as a milligram scale, on which an improved elongated tampon body with improved rounded front end and applied thereto is mounted by means of an axial bore extending through the body so as to slidably engage the exterior of the primary member of the improved inserter having an open end sealable with a closure, on which the tampon body being with rounded front end is comprised of an absorbent material so as to have a porous outer surface formed in the shape of a radially-disposed longitudinal pleats wherewithin or whereon the indicators may be applied and a porous inner surface formed by the bore, with improved string means also incorporating indicators, attach to the body portion for use in removing the tampon body after use. A medicament, preferably in a solid, gelatin, ointment, foam, paste or encapsulated form, is disposed in the remainder of the bore so as to abut the inserter closed end, or can be contained within the improved inserter primary member whereby secondary member is telescopically fitted and the retraction of the secondary member would allow a space within the primary member for medicament to be placed or selectively pre-packaged accordingly with dosage measurement scale, secondary member would be telescopically replaced to abut the contained medicament. The normally closed end of primary member of inserter has an improved open end sealable with a closure to contain medicament prior to use whereby, telescopic injection of secondary member within the primary member will eject medicament from dual-member wand primary member when closure is removed prior to insertion and is selectively expelled via the primary member by longitudinal relative movement between primary and secondary members of the inserter within the bore of the tampon body portion. In the preferred embodiment, a peripheral ring and grip is formed on rear end of the inserter primary member to serve as a platform for tampon body prior to insertion and a second peripheral ring appears on the secondary member opposite the end abutting the medicament to engage the primary member peripheral ring to insure selective expulsion of the medicament contained within the primary member and to further insure smooth longitudinal relative movement without premature collapse of said bore. Moreover, application of indicators to a conventional tampon assembly consists of a hydrophilic tampon body, applicator housings, plungers, withdrawal strings, etc. are so simultaneously improved by application of said indicators constituent to the preferred embodiment.

BRIEF DESCRIPTIONS OF THE DRAWINGS

The present invention may be more readily understood by referring to the accompanying drawing, in which:

FIG. **1**, is a perspective view of a tampon body delivery assembly with the conically rounded front end and measurement scale on the wand which abuts the tampon body at the closed end for seriatim insertion according to the present invention.

FIG. **2**, is a wand end view of a tampon delivery assembly with the conically rounded front end shown.

FIG. **3**, is a cross-sectional view taken on line **3**—**3** of FIG. **2**.

FIG. **4**, is a side view of the tampon delivery body with the conically rounded front end and dosage measurement scale on the wand which abuts the medicament in a seriatim procedure at the closed end of the present invention of FIG. **1**, illustrating the ejection of a medicament from the tampon delivery body assembly, with the conically rounded front end.

FIG. **5**, is a perspective view of a tampon delivery body with indicators in example of using but not limited to, paper and shown in various positions as an example of indicators other than dye or component derivatives applied.

FIG. **6**, is a perspective cutaway view of a conventional tampon body assembly with rounded front end showing various areas with a variation of indicators in example of using a dye or component derivative other than paper applied.

FIG. **7**, is a cross-sectional view of a tampon delivery assembly with improved dual telescopic plunger members with an open end sealable on the lead end of the primary member with a closure, a secondary member telescopically fitted incorporating dosage measurement scale on either member with applicable set of peripheral rings.

FIGS. **8**A and **8**B, is a chart-graph for comparison of resultant color change of indicator displaying the indexed range of such applied example indicator, FIG. **5** and FIG. **6**, such example identifying an applicable range of pH values present in a normal physiologic vaginal environment versus active primary infections of the vaginal cavity.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the FIGS. **1** through **3**, there is shown a tampon assembly **10** with a conically rounded front end **11** according to the present invention, which further consists of a tampon body **12**, a withdrawal string **14***a*, **14***b*, and a wand or inserter **16** with medicament measurement dosage scale **51**. Preferably, the tampon body **12** with its improved conically rounded front end **11** is enclosed in a removable protective covering, **18**, shown in dotted lines in FIGS. **1**, **2**, **3**, **5** and **7**, to maintain the cleanliness of the tampon body **12** with improved conically rounded front end **11** prior to use. A medicament **20** is disposed in a longitudinal bore **22** extending through the tampon body **12** with rounded end **11**. The withdrawal string **14** is illustrated as being configured in a "U", so that one end **14***a* extends through the bore **22** and the other end **14***b* extends along the external surface of the tampon body portion **12** with rounded front end **11**.

The tampon body **12** with improved rounded front end **11** is formed of an absorbent material, as that term has been previously defined, so that the bore, **22**, forms a porous interior surface **24**. The tampon body **12** with the improved front end **11** has a porous outer surface **26** in the form of a series of longitudinally aligned, (see FIG. **1**), and radially-extending, circumferentially-disposed pleats (see FIG. **2**).

The wand or inserter **16** has a grip **30** formed at one end thereof. As is shown in FIG. **3**, the wand **16** with dosage measurement scale **51**, has an open end **32** adjacent the grip **30** and a closed end **34**, which abuts the encapsulated medicament **20**. A peripheral ring **31** is formed on the wand **16** with dosage measurement scale **51** adjacent the closed end **34** so as to directly engage the porous inner surface **24** of the tampon body portion **16** at the bore **22** to scrape the interior of the bore **22** as the medicament **20** is ejected from the tampon body **12** with rounded front end **11**, as will be described herein after, in addition to providing a seal of the bore **22** until final withdrawal of the wand **16** with dosage measurement scale **51** from the tampon body portion **12** with rounded front end **11**.

Referring now to FIG. **4**, the tampon assembly **10** is shown in a disposition in which the medicament **20** is in the process of being expelled from the tampon body **12** with rounded front end **11**. For purposes of ease of understanding of the operation of the tampon assembly **10**, the insertion of

the tampon assembly **10** into the vaginal cavity has not been shown. Such insertion is performed in the conventional manner. Specifically, the process would include the removal of the removable protective covering **18** from the tampon body **12** with rounded front end **11** or tampon assembly **10**, the insertion of the medicament **20** into the bore **22** if not already inserted, the insertion of the wand **16** with dosage measurement scale **51** into the bore **22** either prior to or subsequent to insertion of the medicament **20** thereunto, and the insertion of the tampon assembly **10**, so assembled, into the vaginal cavity with the ends of the withdrawal string **14** remaining outside the vaginal cavity. As is indicated by the arrow **38**, the wand **16** is moved so that the closed end **34** passes along the bore **22**, thus moving the medicament **20** out of the bore **22**, as is indicated by the arrow **40**. At such time as the medicament **20** is completely expelled from the bore **22**, the movement of the wand **16** with dosage measurement scale **51** in the direction shown by the arrow **38** is terminated, and the wand **16** with dosage measurement scale **51** then moved in the opposite direction to the movement shown by arrow **38**, until the wand is completely withdrawn from the tampon body and is then further withdrawn from the vaginal cavity. Thus, upon expulsion of the medicament **20** from the tampon body **12** with rounded front end **11** as above described, and the withdrawal of the wand **16** with dosage measurement scale **51** from the tampon body **12** with rounded front end **11** and the vaginal cavity, the medicament **20** is dissolved within the vaginal cavity as well as sealing the vaginal cavity to maintain the medicament **20** therewithin.

Referring now to FIG. **5**, there is shown a tampon assembly **10** with a conically rounded front end **11** according to the present invention, which further consists of a tampon body **12**, a withdrawal string **14***a*, **14***b*, and a wand or inserter **16** with medicament measurement dosage scale **51** and indicators **44**, outer diameter **44**A, inner diameter **44**B, of side surfaces applied in example as a paperlike form. Preferably, the tampon body **12** with improved conically rounded front end **11** is enclosed in a removable protective covering, **18**, shown in dotted lines in FIGS. **1**, **2**, **3**, **5** and **7**, to maintain the cleanliness of the tampon body **12** with improved conically rounded front end **11** prior to use. A medicament **20** is disposed in a longitudinal bore **22** extending through the tampon body **12** with rounded front end **11**. The withdrawal string **14** is illustrated as being configured in a "U", so that one end **14***a* extends through the bore **22** and the other end **14***b* extends along the external surface of the tampon body portion **12** with rounded front end **11**. The operation of the tampon assembly remains the same as that described in FIG. **4**.

Referring now to FIG. **6**, a cutaway perspective view is shown as an example showing a conventional tampon body assembly with rounded front end **11**A which further consists of a tampon body **12**A, a withdrawal string **14** and an external applicator housing **18**A including an applicator plunger **16**A conventionally manufactured of cardboard or injection molded plastic which ejects the tampon body **12**A via the applicator housing **18**A in the direction of arrow **38** which slidably engages the plunger **16**A for ease of insertion into the vaginal cavity. Indicators **46**, shown are applied in example of using an indicator dye or derivative component **46** rather than a paperlike indicator as applied to the tampon assembly, wholly or in parts, consisting of the tampon body **12**A, applicator housing **18**A, plunger **16**A and withdrawal string **14**.

Referring now to FIG. **7**, a sectional view of a tampon assembly **10** with tampon body **12** and rounded front end **11** is enclosed in a removable protective covering **18** whereby tampon assembly **10** contains an improved telescopic medicament plunger **50** consisting of primary member **50**A and secondary member **50**B with dosage measurement scale **51** present on either member telescopically fitted whereby secondary member **50**B is directionally retractable indicated by arrow **39** wherewithin primary member **50**A medicament **20** is pre-disposed and secondary member **50**B slidably reengages primary member **50**A in a longitudinal relative movement **41** so as to abut at the closed end **52** with the medicament **20** whereby open end **36** with removable seal **54** is removed and secondary member **50**B continues longitudinal movement indicated by arrow **41** ejecting medicament **20** as indicated by arrow **40** out the inserter unsealed end **36** when primary member **50**A with peripheral ring **31** and grip **30** fully engages secondary member **50**B with peripheral ring **53** and the entire plunger assembly **50** can be removed by repeating retraction direction **39** when peripheral rings **31** and **53** abut. The tampon body **12** will remain disposed within the vaginal cavity awaiting selective retraction via withdrawal string means **14**.

Referring now to FIG. **8**, Heretofore, indicators have been identified as having a corresponding prognosis chart and a pH indicator is used to provide the most concise example for purposes of illustration such as this chart provides. Indicators in many variations correspond to many different prognosis scales and this example chart corresponds to a pH scale indicative of infections which correspond directly to the resultant color change in the indicator as applied to the tampon assembly wholly or in parts fir such example purpose of determining pH.

In the preferred embodiment, the tampon body **12** with rounded front end **11** has a plurality of randomly-disposed perforations **42** extending between the outer surface **26** and the and the bore **22** along the length thereof. In FIGS. **1** and **4**, only the perforations **42** adjacent the ends of the tampon body are illustrated, it being understood that the use of the perforations **42** is not limited to only those locations illustrated in FIGS. **1** and **4**, but preferably extend along the length of the tampon body **12** with rounded front end **11**. The use of the perforations **42** is particularly preferred when it is desirable to have the medicament **20** be absorbed into the tampon body **12** after expulsion therefrom, so as to act in a manner similar to an internal bandage in applying the medicament within the vaginal cavity. Application of indicators **44**, **44**A, **44**B and **46** do not hinder affectation of said perforations as described above but rather are incorporated in the manufacture.

In the preferred embodiment shown, the wand **16** and dual member wand **50** incorporates dosage measurement scale **51** in either embodiment. Wand **16** utilize peripheral ring **31** in a seriatim procedure in order to compress that portion of the porous interior surface **24** of the tampon body **12** as the ring **31** moves along the bore **22**. Wand **50**, primary member **50**A, utilizes open front end **32** with sealable closure **54** to allow pre-disposal of medicament, on secondary member **50**B peripheral ring **53** engages primary member **50**A abutting medicament **20** prior insertion of medicament. If desired, in wand **16**, in order to avoid the peripheral ring **31** passing out of the bore **22** at the time the medicament **20** is expelled therefrom, with the possibility that the ring **31** would then be readily withdrawable into the bore **22** to permit the withdrawal of the wand **16** from the tampon body **12** with rounded front end **11**. The length of the withdrawal string **14** may be adjusted to provide guidance to the user as to the proper length of movement of the wands **16** or **50** into the bore **22**. The string **14** may also be held by the user

during the movement of the wands **16** or **50** through the bore **22** in order to assist in the initiation and continuation of the relative movement of the wands **16** or **50** with respect to the tampon body **12** with rounded front end **11** as indicated by the arrows **38** and **40**. Various other methods are utilized if so desired, in order to avoid the passage of the peripheral rings **31** and **53** out of the bore **22** at the time of expulsion of the medicament **20** therefrom. For example, a flange could be formed on the wands **16** or **50** at the appropriate longitudinal point so as to engage the tampon body **12** to terminate relative movement between the wands **16** and **50** and the tampon body **12** at the point of expulsion of the medicament **20** from the bore **22** and rounded front end **11**.

From the foregoing description, it will be apparent that the present invention may be distributed in any one of at least three forms. For example, the tampon assembly **10** with rounded front end **11** may be distributed as shown in FIG. **1** and FIG. **5**, with the medicament **20** already inserted. Alternatively, the tampon body **12** with rounded front end **11** and wand **16** with dosage measurement scale **51** applied may be distributed without the medicament, which then is inserted in the bore **22** directly or into wand **50**, primary member **50**A with removable closure **54** by the user immediately prior to use, thereby avoiding a shelf life problem and sanitary handling with respect to the medicament. In addition, the tampon body **12** with rounded front end **11** and indicators **44**, **44**A, **44**B and **46** applied to the tampon body, housings, plungers, withdrawal string, etc. may be packaged separately from the wands **16** and **50**, since the wand **16** may be reused or wand **50** may be pre-packaged. In addition, an improved conventional tampon assembly for strictly catamenia absorbing purposes may incorporate indicators **44**, **44**A, **44**B and **46** for use during other than menstrual periods as a test apparatus. In such an embodiment, a number of tampon bodies **12** incorporating indicators **44**, **44**A, **44**B and **46** with rounded front ends **11** may be used over a period of time with a single wand **16** with dosage measurement scale **51** or dual-member wand **50** also incorporating dosage measurement scale **51**, thereby further reducing both the cost to the user and the shipping weight and storage volume required. Further, in such an embodiment, the user will experience minimal waste, expedient application, dosage accuracy and immediate diagnostic results delivered in a sanitary manner.

The present invention relates to the structures described above and hereinafter claimed with respect to the tampon assembly **10** and the components thereof, and not to any particular materials of construction. The term absorbent, as used herein, as stated above, comprehends the use of any hydrophilic material. The wands **16** and **50** may be made of any appropriate material such as nontoxic lightweight moldable plastic and may include a dosage measurement scale as applied in the preferred embodiment through methods such as, but not limited to, heat stamping, or incorporating raised numerals during the molding. While it is tubular in the preferred embodiment for purposes of economy of weight and material, the wand **16** or secondary member **50**B may be solid if desired or may consist, for example, of a rod with an expanded head functioning as the equivalent of the closed end **34**. The material of the removable closure for primary member **50**A is conventional and in the preferred embodiment can be constructed of a biodegradable material formed in the shape of the open end and able to be pulled or pushed out. The material of the string is conventional, and therefore the term "string," and the other terms used herein, unless otherwise defined herein, are not limited to the precise materials or depictions contained herein, but rather include structures and materials within the permissible range thereto. The removable protective covering **18** and **18**A is also of conventional material, such as paper or plastic film. The covers **18** and **18**A may completely enclose the entire tampon assembly **10**, as when the medicament **20** is included in the device as distributed. Obviously, the tampon bodies **12** and **12**A with indicators **44**, **44**A, **44**B, **46** and medicament **20** can be packaged separately from the wands **16** or **50**, or the tampon bodies **12** or **12**A with indicators **44**, **44**A, **44**B, **46** and the wands **16** and **50** can be packaged separately from the medicament **20**, or the tampon bodies **12** and **12**A with indicators **44**, **44**A, **44**B, **46** can be packaged separately from the medicament **20** and the wands **16** and **50**. Consequently, in FIGS. **1**, **2**, **3**, **5** and **7** the tampon body **12** or **12**A is shown as enclosed by the protective covering **18** or **18**A for purposes of illustration only, and not as a limitation.

The invention claimed is:

1. A tampon assembly comprising:

an absorbent tampon body having a longitudinal extending bore that extends between a first end and a second end of said tampon body,

an outer tubular wand member residing in a portion of said bore, said outer tubular wand member being capable of holding a medicament for insertion into a body cavity,

an inner tubular wand member telescopically inserted into said outer tubular wand member to allow for expulsion of said medicament from said outer tubular wand member,

said inner tubular wand member further comprising a dosage measurement scale that allows a user of said assembly to determine the amount of said medicament that has been expelled from said outer tubular wand member as said inner tubular wand member is used to expel said medicament.

2. The tampon assembly of claim **1**, wherein said outer tubular wand member further comprises a closure member that has two states,

a first state in which said closure member covers an end of said outer tubular member, and

a second state in which said closure member does not cover said end of said outer tubular wand member.

3. The tampon assembly of claim **2**, wherein said inner tubular wand member further comprises a ring member movable along an outer surface of said inner tubular wand member.

4. The tampon assembly of claim **2**, further comprising withdrawal means connected to said tampon body.

5. The tampon assembly of claim **1**, wherein said inner tubular wand member further comprises a ring member movable along an outer surface of said inner tubular wand member.

6. The tampon assembly of claim **5**, further comprising withdrawal means connected to said tampon body.

7. The tampon assembly of claim **1**, further comprising withdrawal means connected to said tampon body.

8. A tampon assembly comprising:

an absorbent tampon body having a longitudinal extending bore that extends between a first end and a second end of said tampon body,

an outer tubular wand member residing in a portion of said bore, said outer tubular wand member containing a medicament for insertion into a body cavity,

an inner tubular wand member telescopically inserted into said outer tubular wand member to allow for expulsion of said medicament from said outer tubular wand member,

said inner tubular wand member further comprising a dosage measurement scale that allows a user of said assembly to determine the amount of said medicament that has been expelled from said outer tubular wand member as said inner tubular wand member is used to expel said medicament.

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